

- Leston, D. 1961. Testis follicle number and the higher systematics of Miridae (Hemiptera-Heteroptera). Proc. Zool. Soc. Lond. 137:89-106.
- Rawlins, J. E. 1984. Mycophagy in Lepidoptera. Pages 382-423 in: Q. Wheeler and M. Blackwell (eds.), Fungus-Insect Relationships: Perspectives in Ecology and Evolution. Columbia Univ. Press, New York.
- Schuh, R. T. 1974. The Orthotylinae and Phylinae (Hemiptera: Miridae) of South Africa with a phylogenetic analysis of the ant-mimetic tribes of the two subfamilies for the world. Entomol. Am. 47:1-332.
- Schuh, R. T. 1976. Pretarsal structure in the Miridae (Hemiptera) with a cladistic analysis of relationships within the family. Am. Mus. Novit. no. 2601, pp. 1-39.
- Uhler, P. R. 1891. Observations on some remarkable forms of Capsidae. Proc. Entomol. Soc. Wash. 2:119-123.

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## THE TAXONOMIC STATUS OF *CNEMODUS INFLATUS* VAN DUZEE (HEMIPTERA: LYGAEIDAE)

This paper originated from the discovery by the second author of a series of lygaeids obtained by pitfall trapping at several localities in Virginia. Included in this material was a series of 26 specimens of the genus *Cnemodus* Herrich-Schaeffer, some of which are identifiable as *Cnemodus inflatus* Van Duzee. It was interesting to note that all of the specimens of "*inflatus*" were males and all of the *mavortius* (Say) specimens were females. This gender bias was consistent even though specimens with shortened hemelytra occurred in both sexes.

The status of *inflatus* has been ambiguous for a long time and it seems desirable here to review the situation and formally synonymize it as a junior synonym of *mavortius*.

Van Duzee (1915) originally described *inflatus* from two brachypterous males from North Carolina (Balsam Mountain [W. J. Palmer] and Southern Pines [Manee]) and "four examples received from H. G. Barber." These latter specimens are not referred to by either sex or locality. Van Duzee stated that *inflatus* was distinguishable by being a "little longer and darker than *mavortius*, with the rostrum shorter and the anterior lobe of the pronotum more inflated." It should be noted that *mavortius* varies considerably in color and that Van Duzee's actual description does not indicate a longer labium but rather that it does not reach so far posteriorly (a condition we believe to be due to the larger and more inflated anterior pronotal lobe).

Blatchley (1926) expressed reservations about the validity of *inflatus* as he noted variation in both characters. He treated it as a "variety" of *mavortius*.

Froeschner (1944) studied a series from Missouri, noted that the inflated pronotum and short labium occurred only in brachypterous specimens and that even in these brachypters there was considerable variation in the degree of development of both

characters. Froeschner concluded that "the variety *inflatus* of Van Duzee is apparently superfluous." Thus *inflatus* was synonymized at that time.

Torre Bueno (1946) disagreed and treated *inflatus* as a valid species. Slater (1964) in the introduction to his catalogue stated that in almost all cases he followed the literature "slavishly" and since Torre Bueno's treatment of *inflatus* was the most recent he listed *inflatus* as a valid species (even though he felt specific status was doubtful because he was aware of Sweet's work cited below). This apparently led Ashlock and A. Slater (1988) to follow the same procedure. Unfortunately Sweet's (1964) study of the biology of *Cnemodus mavortius* appeared the same year as the Slater catalogue and thus was not cited in the latter (although it is cited without comment under *mavortius* by Ashlock and A. Slater (1988)). The Sweet paper is important not only because it is the only careful study of the biology of *mavortius* but because it seems to definitely support Froeschner's conclusions that there is striking variation in size and pronotal shape in relation to brachyptery. Sweet also was the first to point out that sexual dimorphism was involved, with the males being variable in size and "both *mavortius* and *inflatus* types can be distinguished." Unfortunately however Sweet did not formally synonymize *inflatus* because he had not seen the type.

The Virginia evidence that only a single species is involved is supported by Connecticut material. Eleven male specimens have been examined. Five of these are macropterous and all have a non-inflated anterior pronotal lobe. Of the six brachypterous males four have inflated anterior pronotal lobes and two do not. It is also evident that the increase in size of the pronotum causes the labium to not extend as far posteriorly as in specimens with non-inflated pronota.

Thus we are convinced that the evidence given by Froeschner and Sweet and our own observations all lead to the same conclusion; i.e., that *inflatus* Van Duzee is based upon males of *mavortius* with an inflated anterior pronotal lobe and thus is a junior synonym.

This is not an isolated situation in the Lygaeidae. In the related *Pseudocnemodus canadensis* (Provancher) the same condition is present. We have examined a series of 45 specimens from a variety of localities. Of these 14 (5 males, 9 females) are macropterous and all have a relatively slender, non-inflated anterior pronotal lobe. Of the brachypterous specimens 17 are males and 14 females. All of the females have slender pronota. Of the 17 brachypterous males 10 have an inflated anterior pronotal lobe. The situation appears to be identical to that found to occur in *Cnemodus mavortius*.

In Harrington's (1980) cladogram *Pseudocnemodus* and *Cnemodus* are not sister taxa but are closely related. Interestingly *Ashlockaria* Harrington, which is in the same clade, appears to show a similar condition although our series is too small to establish this.

It is our belief that similar situations will be shown to exist widely in brachypterous mydochine lygaeids.

It is of interest to note that over a century ago Uhler (1876) noted that in Maryland *Cnemodus mavortius* "varies much in the breadth of its outline."—James A. Slater and Richard L. Hoffman, *Department of Ecology and Evolutionary Biology, University of Connecticut, Storrs, Connecticut 06269 and Virginia Museum of Natural History, Martinsville, Virginia 24112.*

## LITERATURE CITED

- Ashlock, P. D. and Alex Slater. 1988. Family Lygaeidae. Pages 167–245 *in*: T. J. Henry and R. C. Froeschner (eds.), *Catalog of the Heteroptera, or True Bugs of Canada and the Continental United States*. E. J. Brill, Leiden, New York, Kobenhavn, Koln.
- Blatchley, W. S. 1926. *Heteroptera or true bugs of eastern North America, with especial reference to the faunas of Indiana and Florida*. Nature Publishing Co., Indianapolis, 1116 pp.
- Froeschner, R. C. 1944. Contributions to a synopsis of the Hemiptera of Missouri. Pt. III. *Amer. Midl. Nat.* 31:3:638–683.
- Harrington, B. J. 1980. A generic revision and cladistic analysis of the Myodochini of the World (Hemiptera, Lygaeidae, Rhyparochrominae). *Bull. Amer. Mus. Nat. Hist.* 167: 49–116.
- Slater, J. A. 1964. *A Catalogue of the Lygaeidae of the World*. Vol. II. Univ. Conn., Storrs, Conn.
- Sweet, M. H. 1964. The biology and ecology of the Rhyparochrominae of New England (Het.: Lygaeidae) Part II. *Entomol. Americana* 44:1–201.
- Torre-Bueno, J. R. de la. 1946. A synopsis of the Hemiptera-Heteroptera of America North of Mexico III. Family XI. Lygaeidae. *Ent. Am.* 26:1–141.
- Uhler, P. R. 1876. List of Hemiptera of the region west of the Mississippi River, including those collected during the Hayden explorations of 1873. *Bull. U.S. Geol. Geogr. Surv. Terr.* 1:269–361.
- Van Duzee, E. P. 1915. New genera and species of North American Hemiptera. *Pomona Jour. Entomol. Zool.* 7:109–121.

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